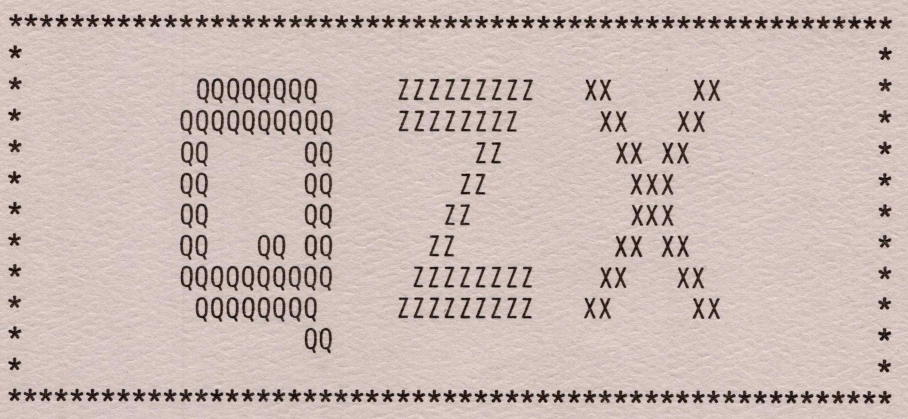
QQQQQQQ ZZZZZZZZZ XX XX
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The Journal Covering Amateur Radio & Sinclair Computers
ZX-80; Micro-Ace; ZX81; T/S 1000, 1500, & 2068; QL
2025 O'Donnell Drive
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88001

K5XY
Alex. F. Burr
Publisher

W4GHV
Bo Barry
Editor

Volume 5 Number 6 ($1.50-issue) May 1987

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World's Greatest Printer, or the Rarest
A review by Bob Howard - WA6DLI

One thing I have always believed once I left the 40 column Timex 2040 printer, was that if you had a good quality output, the Timex-Sinclair computers would equal the best and most expensive computers. Another way to put it is that any money saved in the computer with a Timex-Sinclair, could be spent on the best printer and monitor you could afford and you would be happy. Contrast this to the usual computer owner who has an expensive computer but output from a 9 pin dot-matrix.

My first good printer was the Brother EP-44 Typewriter, which can also be used as a terminal and as a computer printer. It uses a thermal ribbon on regular "slick" paper or thermal paper with NO ribbon. It has a 24 pin head and the most elegant NLQ print style of super quality for a dot matrix. It is a serial printer connection but that was ideal for my TS-2068 at work with Interface 1 (microdrive I/O) which has a serial printer output.. I also used it with a Tasman serial interface at home. The main disadvantages of the EP-44 were that it was not rugged enough for heavy computer printing. It forgets margin start in low voltage conditions so line start drifts as you got down the page. Also it is slow... less than 10 characters per second in its only mode - NLQ.

My second printer was a used Mannesman-Tally MT-80, which in spite of its Teutonic name is really a Shinwa 80, also sold as a Legend 880, or Commodore 1526. It has square pins in a 9 pin matrix, which gives a better than usual and fast draft printout. It was rugged and excellent for a non NLQ printer. Its fault was either the very expensive ribbon if you got the Commodore type, or was hard to find ...E. Arthur Brown has them for $6.95. Like many printers it gives great black for a month and gray forever.

I gave my daughter the MT-80 for her TS-2068 Word Processing and invested in a Seikosha SP-1000A that was sold by MidWest Peripherals in Ohio for $199 (parallel model). This is the same in many respects as the Sinclair printer for the QL which uses the serial version. It is also sold with a Commodore interface and fewer features at $179 or so. The Seikosha is one of the clever 9 pin models that gets NLQ by printing the line twice for an equivalent 18 pin letter matrix.

In draft it is fairly fast and has a number of good features. It, like the MT-80, is "Epson compatible" which is a must if you expect to find a printer driver for your computer. It has excellent paper handling in both cut sheet and fan fold. It appears rugged and ribbons can be found at Radio Shack (same as their "130" printer), but are expensive unless bought by mail order. The "Confessions" article was reproduced from this printer output in QZX! What I can't stand in an otherwise nice NLQ type style, is the capital W which is almost a V on that printer....is that why it is sold in the bargain mail-order outlets?

Since I was spoiled by the super NLQ of the EP-44 (which can't do screen dumps or graphics) and disappointed by the print style if not the quality of the MT-80 and SP-1000A, which do fine graphics, I have been on a search for the perfect printer...great NLQ, Epson compatible for graphics and print driver compatibility, speed of printing, and economy of ribbons. It also must handle fan-fold and cut paper without extra cost attachments!

The May 1987 issue of Consumers' Report carried a test of the latest 24 pin and 9 pin NLQ computer printers. Is this where my search for the Holy Grail in printers would end? In the past I had been impressed with the Toshiba 321, but shied away as it is not Epson compatible. The Epson LQ-800 scored very high, as did the 9 pin Panasonic 1090i in the tests.. higher than the Toshiba 321. What caught my eye was the sidebar test of four ink jet printers.

Ink jet printers have two redeeming qualities, speed and silence. Other than needing special paper, they are very economical as the ink cartridge, at the the cost of a ribbon, may outlast 10 ribbons! They generally have had large print heads which usually meant mediocre quality of type. This has resulted in some good surplus bargains like the Olivetti from DAK and the three color Canon and Radio Shack color printers.. none of which are NLQ or as good as some in draft quality.

In the Consumers' Report sidebar is a review of a Canon BJ-80 Bubble Jet printer, which tests out by CR to have the advantages of the ink jet and a NLQ equal to the best of the 24 pin NLQ printers in the test! Its cost is not as much as some of the others. These are in the $500 class, but discount priced printers except for the 9 pin models, like the Panasonic 1090i. Is the Canon my answer? I thought so and decided to get it as my ultimate printer.

I scanned the computer magazines. (As a Sinclair user I learned long ago you don't look for bargains in a local computer store).

No Canon BJ-80's listed, but here and there lots of Canon LASER models. Also found were close-out deals with the Canon 3 color ink jet ... $199, way down from the original $1500 list price! I called Canon Los Angeles, who gave me Cannon-Astro, their printer distributor. Astro said .."Gee what's a BJ-80?". I told them that it was Canon's ink jet that was just reviewed with a top rating in Consumers' Report! They said they would research it and call me back.

In the meantime by chance, in a Computer Shopper ad from Logic-Soft in Farmingdale, LI New York, I actually spotted a BJ-80 at a $450 price.

My check went in the mail, and Astro called to say they could get it after all. I told them I had already bought one ... sorry. On June 5, the Canon BJ-80 arrived by UPS in great shape. It is about the same size as my Seikosha, but a little thicker. The book says 15 3/4 in x 11 5/89 in x 4 1/2 in. Weight 13.2 lbs.

It has three touch pads on the front. FF for a form-feed (one page), LL for a line feed, and printer ready/OFF line. The LL and FF only work when the printer is off line. A power switch is on the right side as it faces you. On the back are two selector slide switches. The one nearest the left side chooses DRAFT or NLQ printout. The innermost slide switch selects CHAR SET 1 or CHAR SET 2. I left it on 2 as I work with foreign symbols in addresses like - - - -. Char SET 1 allows choosing expanded and compressed printing from the keyboard with the CTRL key and Shift if necessary.

The printer comes with a four page supply of Canon Bubble Jet paper. Just enough to last about five minutes. I found the local computer stores DON'T sell ink jet printer or paper... maybe they don't like the loss of ribbon sales. I had a flash thought... Heathkit sells the Kodak designed little ink jet, also reviewed by CR. Off to a nearby (lucky me) Heathkit Center and I bought several packs of ink jet fan fold paper.

Before thinking of Heathkit, I had bought a small pack of the best smooth bond fan fold paper I could get at a stationery store. It gave a printing density about like a well used ribbon ... the gray after the first month on the MT-80, but was usable, if not great. The Canon paper was good but is off-white, as mentioned by CR. From our Siemens ink jet at work, I knew that ink jet paper makes a great difference in quality and sharpness. The Heathkit paper (Brand ProPrint Item #06153) was great.

Now what does the printer do. Well its draft quality uses 24 pin too but at a lower density so it prints a good letter at 220 characters per second. The NLQ mode is at 110 cps or 10 times the speed of my other printers in NLQ mode. The typeface is standard Courier so would be well accepted in commercial use. It is silent, just a swish of the head and slight thunk at the end stop, when it reverses.

On my QL, with the Miracle serial-to-parallel cord, I can access the foreign character from the keyboard with Shift and CTRL. It works fine with Quill and uses Bubble Jet (high, low, and underline). BOLD ONLY SEEMS TO WORK in draft mode. NLQ uses the bold overstrike I presume.

My last act was to order some spare BJI-801 ink cartridges. This turned out to be less available than the BJ-80 printer. Logic-Soft in LI said we only show p/n JI20C color at $17, so I called Canon NY USA who gave me Canon Costa Mesa, CA who said you can buy all the cartridges for $13 each. Canon ink jet fan fold paper is 2500 sheets for $50. The nice white Heathkit paper was $9 for 200 sheets. If you want one of these super printers start by calling Canon in LI, Chicago, Los Angeles, Dallas, or Atlanta in the USA or in three Canadian cities where they have offices. Maybe they can tell you where to get one! Logic-Soft's June ad didn't show it!

Publisher's Notes

The following is an exchange of FIDO mail which I had with one of our members which addresses a problem which we have been having. Bo and I are quite busy and we have a hard time keeping up with the months. I thought I would get caught up a bit this summer but college tuition dictates that I teach summer school so as not go into debt. Also it appears that I have to make a couple of trips out of the country, BUT all the issues of QZX will arrive eventually. We could do with a few more articles from our readers too. We are most frequently asked for more articles for the ZX81 and the T/S 1000.

(This exchange also lets you see what FIDO mail looks like in case you have not used this means of communication.)

#141 17 09 May 87 07:06:23
From: Dale Johnson
To: Alex Burr K5xy
SEE ALSO #146
Subj: qzx newsletters

dear mr burr:
as of may 8th, 1987, i have not received my issues for feb, march april and now awaiting to see if may will arrived.. the address is correct on the mailing label also my subscription ends on jan 1988.. please send me the back issues that i have not received. also let me know if there was a problem that arose. I know that can happen..
thank you dale johnson wb9nrk
1331 bellevue lot 371
green bay, wis 54302

[141] 1 - 148RKENP-+Qor? for help: 146

#146 2 13 May 87 09:54:11 (PRIVATE)
From: Alex Burr
To: Dale Johnson
REPLY TO #141
Subj: QZX

THERE IS NO PROBLEM. WE ARE JUST LATE. THE FEB ISSUE IS THE CURRENT ONE AND IT IS IN THE MAIL. ALL THE ISSUES WILL GET THERE (EVENTUALLY) AT A RATE OF A LITTLE OVER ONE PER MONTH, WE HOPE.

T/S 1500 NOTES
Fred Nachbaur

These notes are comments by Fred Nachbaur on the T/S 1500 as excerpted from a letter from Fred to WA6DLI.

The T/S 1500 has become my favorite computer. In addition to the built-in 16K RAM and other improvements, the 1500 has another feature that is highly significant; Timex replaced those stupid resistor strings on the data and lower address lines with real, honest-to-goodness buffer chips, resulting in much cleaner signals (and allowing much better reliability when adding peripherals). Unfortunately, they got chintzy and omitted pullups on the inputs ... the same mistake they made on the T/S 2068. You can demonstrate the effect of this as follows; peek around in the 8-16K and/or 32-64K region with nothing else attached. Instead of getting nice, clean FF's (255), you get "God-only-knows-what". Often you'll get different numbers when peeking the same location a few times in succession! I suspect that this is the reason why some 1500"s won't work with some add-ons (e. g. Arco printer I/F, etc.). I also suspect that adding pullups would take care of such incompatibilities, though I haven't tried it.

As far as being rare, the 1500 was distributed quite widely to schools. General Motors and UCLA (to mention only the two I'm sure about) bought these by the crateful for "Beginning Computing" courses. Also there are (were) at least two correspondence schools that used the 1500 for their computer courses. The problem is that these outfits don't give out mailing lists, so their poor unfortunate students are, for the most part, unaware of the large support network that exists for these machines.

One point I feel I should bring up about Sinclair (Cambridge) BASIC is its precision. By using five-byte floating point numbers (instead of four as on almost all the others), you get 2-1/2 additional decimal places of accuracy. It is mainly for this reason that a lot of engineers who deal with mainframes and AT's on a daily basis, also have a ZX81 sitting on their desk for those times when they need a more precise answer than the "big boys" can give without resorting to fancy multiple-precision arithmetic.

It is also interesting that according to a "reliable source", the ST BASIC provided with the Atari 520/1040 was the first-draft of the BASIC for the QL! Sinclair turned it down as being completely inadequate. It is terribly inefficient. For instance, your entire variables area is limited to a mere 32K! I can write a busier program in a 64K ZX81 than on a 512 K ST; a program that runs fine in a ZX81 (Mandelbrot set) can't even be written on the ST!. I will say though that the Atari did a little better with their word processor. It's actually quite good, I'd say even superior to Quill.

A publisher's note

Some of the ideas which Fred was giving in the first part of this article might be a little new to some of our readers. These ideas also apply to the ZX81 and T/S 1000 although the hardware changes he was talking about do not.

The Z80 CPU used by our computers can address 64K of memory, but the Sinclair computers do not have that much memory. The first 8K is used by the ROM and none of the computers mentioned in this article use the memory region between 8 and 16K. (That is why the Hunter Boards used that region). You can still ask the computer to PEEK to one of those addresses though.

Fred is commenting on the fact that the data lines were so constructed that the logic would not be sure whether a 1 or a 0 would be on the data lines if a nonexistent memory location was addressed. Fred is suggesting

that good design practices require that all data lines be pulled up to a 1 state unless the memory location addressed requires that one or more of the 8 data lines be a 0.

If Fred's reasonable suggestion were followed, any PEEK to a nonexistent memory location would then show all the data lines at the 1 logic level. This state of affairs is denoted in hex numbers by FF or in decimal numbers by 255. Sinclair basic asks that the address the PEEK is to interrogate be expressed in decimal and returns the contents of that address in decimal. Try it on your machine and see what you get.

The PC 8300
K5XY

One ad said "Advanced version of the T/S 1000. Will run all prerecorded tapes for the Sinclair/Timex 1000-ZX81." But will it? And what is it really?

The short answer is that this new computer is not a ZX81 clone and that there is a high (but unknown) degree of compatibility.

The next thing to notice is that it is somewhat of a mystery machine and that everybody does not get exactly the same thing when one is ordered. This last fact makes the reliance on a review a bit uncertain as you may not get exactly what the reviewer got.

There is no manufacturer's name on the case nor is any identification provided in the manual. The case says "made in Hong Kong" and the manual proves it because about three fourths is in Chinese. However, enough is in English and it is enough like the ZX81 that it is usable.

The biggest difference is the keyboard. The keyboard is said to use mechanical switches and has chiclet keytops. It is larger than the ZX81 and has 42 keys and includes a RESET key and a key which automatically supplies line numbers (incremented by 10) when you write BASIC programs. The keys beep when pressed with each row producing a slightly different beep. (The beep can be turned off with a NOBEEP command.) The graphics symbols (same as the ZX81) and the arrow keys are relocated.

Inside there is no overcrowding and many familiar chips, almost all in sockets. There is a Z80 CPU, a C4005 (their ULA), an AMI 844ab ROM, a TMM 2016 RAM, and two chips soldered in, a SN74LS05 and a 7805 regulator on a large heat sink. It would appear that if you cleaned some solder out of the holes, you could add four more 2114 RAM chips. The keyboard is connected to the circuit board with a trouble prone ribbon cable (here with 16 wires).

The ports available include DC, EAR, MIC, MONITOR, buss edge connector, JOYSTICK, and TV. So already we see some extensions of the ZX81. The edge connector is compatible with the ZX81 edge connector. In fact the ZX81 external RAM will work, as will the T/S 2040 printer. The DC socket will take the T/S 2068 power plug but DO NOT use it because the polarities are different.

Many Timex BASIC programs have worked on the PC 8300, but there are a few differences in the character set (including the addition of a few from the T/S 2068 which are not mentioned in the manual). Most of the single stroke Sinclair BASIC keywords are gone. They have to be typed in full, but the PC 8300 translates them into the correct Sinclair form and even supplies needed spaces so that they appear correctly on the screen and work correctly in programs. Some difficulties have been experienced with machine language programs.

While Timex tapes have worked on the PC 8300, PC 8300 tapes have not been successfully loaded into a fussy T/S 1500. The tape output signal appears stronger than the ZX81, as is the TV output signal. There is no indication of internal shielding of the PC 8300 so I would expect considerably more interference to appear in ham receivers.

The computer can be purchased by mail from American Design Components, 62 Joseph Street, Moonachie, NJ 07074 with a telephone number of (800) 524-0809. It is also sold by Herback and Rademan, 401 E. Erie Ave., Philadelphia, PA.

Country Search
J.C. Smith (from CTM 2/86)

This program was designed to file information by country. It can be used to store either DX or scheduling information.

```
10 LET A$="COUNTRY SEARCH BY WDX9JFT"
20 LET D=LEN A$
29 CLS
30 PRINT "PLEASE INPUT THE COUNTRY BEING
   LOGGED. IF YOU WISH TO SAVE THE
   INFORMATION ALREADY FILED THEN INPUT A
   "">"" SIGN"
40 INPUT B$
43 CLS
44 IF B$=">" THEN GOTO 700
45 FAST
50 LET C=LEN B$
60 LET N=1
```

```
70 IF A$(N)="*" THEN GOTO 100
80 IF N=D THEN GOTO 500
90 LET N=N+1
96 GOTO 70
100 IF CODE (A$(N+1))<>C THEN GOTO 130
110 LET H$=A$((N-C) TO N-1)
120 IF H$=B$ THEN GOTO 160
130 LET F=CODE A$(N+2)
140 LET N=2+F+N
150 GOTO 70
160 SLOW
169 CLS
170 PRINT "THE INFORMATION ON ";B$;" IS"
180 LET G$=A$(N+3 TO (N+2+CODE A$(N+2)))
190 PRINT
200 PRINT G$
210 PRINT
220 PRINT
230 PRINT "WOULD YOU LIKE TO UPDATE THIS
    INFORMATION ? (Y/N)"
235 LET U=0
240 LET G$=INKEY$
250 LET U=U+1
255 IF U=100 THEN PRINT "PLEASE PRESS ""Y""
    OR ""N"""
260 IF G$="" THEN GOTO 240
270 IF G$<>"N" AND G$<>"Y" THEN GOTO 235
280 IF G$="N" THEN GOTO 29
285 CLS
290 PRINT "PLEASE INPUT THE NEW INFORMATION
    ON ";B$
300 INPUT I$
310 LET NU=CODE A$(N+2)
320 LET Q=LEN I$
340 LET A$=A$(1 TO N+1)+CHR$ (LEN I$)+I$+
    A$(N+2+NU TO )
350 LET D=LEN A$
360 GOTO 29
500 SLOW
510 PRINT "THERE IS NO INFORMATION ON "
520 PRINT B$;" WOULD YOU LIKE TO CREATE A
    FILE ON THAT COUNTRY? (Y/N)"
525 LET U=0
530 LET G$=INKEY$
540 LET U=U+1
550 IF U=100 THEN PRINT "PLEASE PRESS ""Y""
    OR ""N"""
555 LET G$=INKEY$
560 IF G$="" THEN GOTO 540
570 IF G$<>"Y" AND G$<>"N" THEN GOTO  525
580 IF G$="N" THEN GOTO 29
585 CLS
590 PRINT "PLEASE TYPE IN THE INFORMATION Y(
    WOULD LIKE TO STORE ON ";B$
600 INPUT I$
610 LET J$=B$+"*"+CHR$ C+CHR$ (LEN I$)+I$
620 LET A$=A$+J$
625 LET D=LEN A$
630 PRINT "INFORMATION SAVED"
640 PAUSE 50
650 GOTO 29
670 SAVE "CALL"
680 GOTO 29
700 PRINT "PLEASE SET UP TAPE RECORDER"
710 PRINT "AND PRESS ANY KEY WHEN READY"
720 PAUSE 40000
730 SAVE "CALLSEARCH"
740 CLS
750 PAUSE 250
760 GOTO 29
```

Joe's address is:
P.O. Box B36085
Florence, AZ 85232.

Editor's Doings
Bo Barry - W4GHV

I too want to apologize for the lateness of the issues. I'm 'peddling as fast as I can' to catch up.

I'm moving! - Finally in a position to purchase (take out a LONG loan for) a home, I'm pretty excited about getting out of the 'torture chamber' we have been renting for the past 11 months. As my moving date approaches, I often wish I was a lawyer instead of an engineer. I'm not after remuneration for my mental anguish, but wish I had the ability to 'improve' the living conditions for the poor souls that must remain here, or to warn the uninformed that may land up here. I had to rent this place over the phone while in NM and was led into this place by false advertising, billing it as 'luxury living'. I get angry every time I see the sign at our entrance. The only luxury here is a $200 microwave! Oh yes, we also have a fireplace, that tacks $20/month onto the rent (summers included). However, they evidently left part of the 'workings' out when they built the place, and when someone tried theirs last winter they burned the building (not mine) down! I at least got my $20/month back and was told not to use the fireplace.

I could fill this issue with the 'gripes', all legitimate, but the one that brings disgust is the repeated entry into my LOCKED apartment without the courtesy of a knock on the door! On one occasion they had no idea who had been given the master key until I found out and informed them. It's like staying in a motel where you are disturbed by the cleanup crew whenever they feel like entering. Repeated calls have to be made to to the manager to curtail the demolition crew's (small kids) noise upstairs. I think prisoners in the local prison have more rights that I have here. Oh

well, I'll regain my sanity in short order, and will be able to spread all my QZX stuff out again SOON. (I still wish I had the legal brains (or money) to sue these nincompoops!)

Proud Father - My wonderful daughter, Mona, recently graduated from the University of Utah with an Industrial Engineering Degree. She somehow managed to get the most from BOTH sides of her brain. Usually holding 'first chair' with her viola during her teen-age years, she was a talented musician (A right side of the brain function). Going on to college, she majored in engineering, and graduated with a pretty high average. (A left side of the brain function for engineers, I've been told). Her dad can hold his own in the engineering world, but can't tell if the horn on my car is sharp or flat.

The visit to Salt Lake City was enjoyable and the round of golf in the mountains was marvelous except for the score. (Mona beat me by ONE stroke!) SLC is a lot different than I envisioned and the weather was wonderful.

I'm grateful to her for tolerating what most would consider formal, long, boring graduation ceremonies while I lost quite a few happy tears. I'm a college professor, and am probably one of the few that 'enjoy' these events. If you have ever been to one, you would say ENJOY is not the right word to use. But I think RECOGNITION OF ACCOMPLISHMENT is important, and the ceremonies are a traditional attempt to do this. Put simply I 'enjoy' seeing my students (& friends, & relatives) succeed.

So, CONGRATULATIONS MONA! I hope you do well, but that I somehow manage to beat you to Professional Engineer status!

I PASSED! - Yep, I passed the 8 hour examination ordeal and can now be called an "Engineer-in-Training". I have been performing in that capacity (un-officially, of course) for the past 20 years! Now, in order to be called a "Professional Engineer", I have to study for another 8 hour exam to be taken in October. Fortunately I will only have to impress them with my electrical & electronic talents. I hope the exam has been updated to include some computer stuff! It takes 4 months to get the results back, so it will be next year before I'll be able to celebrate, cry, etc.

QL - I'm still in the process of learning my QL, having had several setbacks in getting it set up. It is very tough to operate when the horizontal sync doesn't work on your RGB monitor! I was able to carefully adjust it and use it a little, but I think it is time to dig into the monitor to fix the sync line. I have 0 public domain software for it and would gladly send money for tapes & postage if you have anything of interest.

I really have ambitions of writing a program to control my TS-440S with the QL. I wrote Kenwood for a close up of the ad they have showing a computer controlled Kenwood. I understand the program to do this task has not been written by anyone! It will also be put to use with the packet controller, and I'll be digging into 68000 assembly language programming with it as well. I sure would like to hear from readers owning the Kenwood TS-440S with the computer interface option. I'm wondering what commands are available, how useful is it, and why in the world is it so blasted expensive? The manual indicates it is simply two ICs, worth about $5. The second kit, not mentioned in the manual, evidently converts the output to RS-232 levels; easy to do with a single chip (MAX-234) which provides the +- voltages required, along with the translation buffers. Unless I'm missing something, they must have priced the kits figuring only a few would buy them.

New Address - Here's my new address, hopefully my last one. I love the new home the bank is letting me pay a lot for and I hope to someday 'retire' in it, and ham it up there till I die. Ambrose 'Bo' Barry, 8118 Kensington Lane, Harrisburg, NC 28075. Tel # 704-455-6153. My Teachers Pet Fido bulletin board is at 704-455-6571 24 hours/day at 300/1200/2400 baud.

I have on order one of the G5RV trapless all band antennas to hang from a couple of the very tall pines I now own. I'll report on its performance in the next issue. If in need of antennas, baluns, and other ham equipment, I would recommend getting a catalog from The Radio Works, Box 6159, Portsmouth, VA 23703.

One day service!- I received the antenna 24 hours after I called in the order to his answering machine! I realize that Virginia is near North Carolina, but this guy must have had the UPS truck parked outside his house, waiting for my call to come in.

Hurriedly stringing it between two pines about 4 feet off the ground, I put it to the test. The TS-440S with the internal antenna tuner gave an SWR of less than 1.5:1 on all bands except 30 meters. I'll try it again when I get it in the air, but it may not be usable on that band. Does it work? Plenty of DX was heard, I made one QSO on 20 SSB to Chicago, and then got brave and called a station in Spain on 20 CW. Yep, I got him. I hope it works as well when I raise it a bit higher!

Public Domain Software - If you have a Sanyo MBC-55x or another MS-DOS machine, you may want to drop me a postcard requesting my free DATA-01 disk which contains descriptions of programs I have on over 150 disks. I sell the disks for $2 each in pairs of two. I also have some Tandy Model 100 programs archived onto a couple MS-DOS disks.

QL Memory Expansion - Just received from LU8MAD, who has provided several excellent articles for QZX is a copy of a memory expansion circuit for the QL. It is from the Spanish magazine ELEKTOR (July/August '86), very well written in Spanish of course, but with a schematic I can read! It looks like 128K can be added to the QL with this circuit, requiring 5 ICs in addition to 16 4164s. It looks interesting, but looks like a lot of work for just 128K more. Utilization of 256K chips would be the way to go. I may get the article translated to see if I could modify their approach to accommodate the 256K chips. Commercial 512K upgrades sell for $149.

I'm very grateful to Guillermo for sending the information, and I'm still looking for ideas, texts, etc for my QL.

Brainteaser - Suppose a jailer has 100 convicts, one per cell, in 100 cells. He offers a partial amnesty based on the following scheme. Initially, all cells are CLOSED. Then, at minute number ONE, every cell is OPENED. However, no con may leave during this process. Then, at minute number TWO, every SECOND cell -- that is, cells numbered TWO, FOUR, SIX, etc up to 100 -- is REVERSED so that these cells are now CLOSED. Of course, cells ONE, THREE, FIVE, etc are still OPEN and in any case, inmates still may not leave. At minute number THREE, every THIRD cell -- that is, cells THREE, SIX, NINE, etc -- is REVERSED. Hence any one of these cells previously OPEN is now CLOSED and vice versa.

Now this process is repeated at minute number FOUR, with every FOURTH cell REVERSED, and so on. This is continued up to minute 100. The amnesty offer is that any con in a cell, which is OPEN at the end of the 100 minutes, may go free. (Assuming he doesn't go crazy watching the door open/close constantly!)

So the question now is this: Which cells are open at the end of the 100 minutes?

QZX FRIENDS

K7HSX -- Cliff says he has mostly been using his QL and CP/M on his T/S 2068.

VU2AMR -- Dara sends in the first subscription from India.

KA2NWP -- Charles writes asking about the possibility of doing packet controlling entirely with software. He says that he is a new subscriber and that everybody there is borrowing his copy of QZX. He should tell his friends to subscribe so that the journal can continue to live.

WA6DLI -- Bob comments on packet by saying that to him packet is sort of like 2 meters ... wonderful technically, but God Awful communication QSO's. He sees packet as a great medium for traffic handling and ideal for a mailbox operation with fast orbit satellites.

UNCLASSIFIED ADS

WANTED: UNCLASSIFIED ADS for publication in QZX. Cost is 1 cent for each keystroke (characters, blanks, etc.). Payment must be included with order. This is an excellent way to sell your program or unwanted equipment, ask for help, or find a specific program. Send your ad with payment to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: Sinclair miniature TV. See December QZX for review. $49 postpaid. Alex. F. Burr K5XY, 2025 O'Donnell, Las Cruces, NM

THE ZX81/TS1000 LIVES ON!

SILICON MOUNTAIN COMPUTERS announces TRUE HIGH RESOLUTION SOFTWARE for the ZX81/TS1000. You read it right! Without any expensive hardware add-ons, your computer can now run software that even its designers never dreamed possible. Thanks to an amazing discovery by Wilf Rigter, and innovative programming by Gregory Harder and Fred Nachbaur, you no longer have to suffer the "low res blues." Multiple character sets, 256x192 graphics, 64-column screens, UDG's, even SPRITES are now available for your computer!

NO computer modifications are required. If you have a ZX81, TS1000, or TS1500, with a 16K (or larger) RAM pack, plus an 8K static RAM board, you already have all it takes to run this remarkable software. Suitable static RAMs include the popular "Hunter" board, or similar designs (see SyncWare News vol. 4 no. 1 for one such project costing under $10). Alternately, consider our 8K "SCRAM" board (described below).

All prices include shipping in USA and Canada. Foreign orders: please add $5 for air shipping. CDN$ accepted at par from Canadian customers. Write for catalog of other available software. At SILICON MOUNTAIN COMPUTERS, the ZX81 family of computers is our ONLY specialty. Our goal is to develop the most progressive software ever created for these machines. We feel that the software listed below propels these machines into mainstream computing; we think that you'll agree.

"SCRAM" NVM BOARD

With the loss of the "Hunter" board from the market, we saw the need for an improved functional equivalent, at a lower price! This board works with ZX81/TS1000 or TS1500, has on-board battery back-up protection, and supports all of our high-res software with no modifications.

LIMITED-TIME HACKERS' SPECIAL: Buy 1 SCRAM, get a bare board for only $5.

Other features include:

* DIP switch to deselect 2K blocks
* Board enable switch
* Write-protect switch
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* Use with other machine-code software

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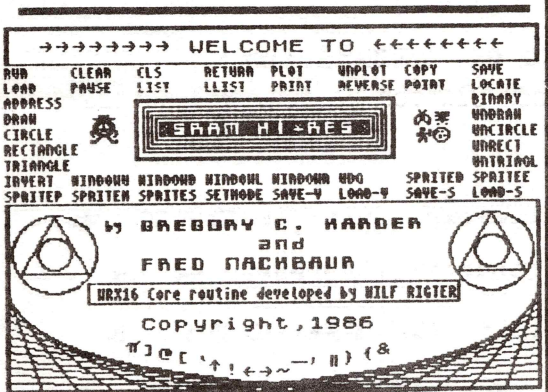
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by GREGORY C. HARDER
and
FRED NACHBAUR
HRX16 Core routine developed by WILF RIGTER
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* TS2040 printer supported
* Much more!

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SUPER GAME!

DUNGEON OF YMIR

This D&D-style graphic adventure game is the most challenging, complex and spectacular entertainment software ever written for the ZX81 family of computers. 9 levels, 124 monsters (16 types), 5 spells, 15 objects. VERY addictive, VERY challenging, VERY impressive graphics. 100% machine-code, yet takes up all available memory in 16K. One reviewer calls it "5-star software" and "a must have." We know that you'll agree.

***** NEW LOWER PRICE *****

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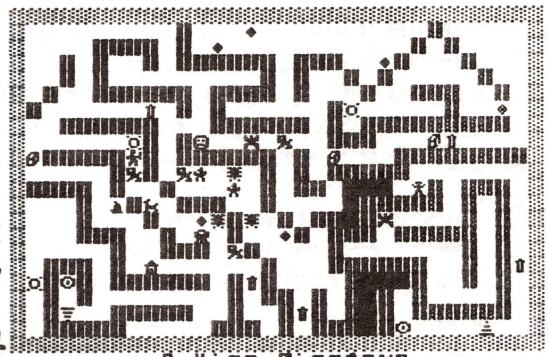

LOSS LEADERS

To introduce you to the wonderful world of HIGH RESOLUTION on the ZX81/TS1000, we're offering these "loss leaders" for your enjoyment. These are all excellent programs, and will demonstrate beyond reprise that you really do own a REAL computer! Get any title for only $9.95. Get any three on one tape for $21.95, or ALL FIVE for only $30.00. We even give you permission to circulate these amongst your friends... have you ever seen an offer like this?

** HI*RES CHESS UPGRADE ** (As published in SYNCWARE NEWS.) This upgrade for the Psion (Timex) CHESS program gives you real chess pieces on-screen. Very impressive!

** HI*RES BLACKJACK ** (As published in Time Designs.) A very graphic (pun intended) demonstration of the power of SRAM HI*RES EXT. BASIC. Closely parallels the casino game. Allows multiple decks. Graphics you NEVER thought you'd see on your TS1000!

** YEAR-AT-A-GLANCE ** Another nifty SRAM EXT. BASIC application. Shows an entire year (1800-2099) on a single screen! Comes with comprehensive "appointment book" file options.

** MACRO-LIFE ** Greg Harder's adaptation of Toni Baker's Spectrum implementation of the classic GAME OF LIFE. Fascinating study of computer-generated patterns.

** MANDELBROT-FFP ** Generate striking hi-res fractal images. See our catalog for a sample. Main loop coded directly in the ROM's calculator language, for a 3x speed increase over straight BASIC, without sacrificing "zoomability."

NEW!! ZX-TERM*80

No screen-dump could do justice to this program. This is THE definitive modem terminal program for the ZX81/TS1000 and TS1500.

* Westridge or Byte-Back modems supported.
* Instantly select 40 column, 60-column, or 80-column character widths. You read it right! 80 columns on the ZX81/ TS1000! Upper/lower case, and all ASCII symbols, while preserving Sinclair graphics; can even be customized to mimic IBM or other graphics sets.
* Two window modes. "One-window" mode displays all text on a single large screen; "Three-window" mode has separate windows for menus/prompts, your typed output, and received input! Windows 2 and 3 are even adjustable, just like on the "big guys."
* Allows XMODEM up/downloading of ASCII files, Sinclair programs, EVEN SINCLAIR VARIABLES! Usable with word-processors and similar programs.
* TS2040 and "big" printers supported, via any of the popular interfaces.
* Revolutionary modem input routine allows you to adjust windows, change width mode, etc. without losing a single incoming character.
* Relocatable, and usable with 16, 32, or 64K RAM.
* Takes only 4K at the top of memory, plus the 8K SCRAM board (or eq.)
* Review files in either Sinclair or ASCII mode.
* Allows local echo to be enabled or disabled.
* "Beginner-friendly" while maintaining full flexibility for customizing and "hacking."
* Redefined, auto-repeating Keyboard works like a true upper/lower-case terminal.

Finally, a REAL terminal package for your computer. Comes with a very comprehensive manual; it even has a large section on "Useful POKEs" for customizing to your tastes.

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THE Z-SI/O IS SOLD WITH A 26+ PAGE USER/TECHNICAL MANUAL FOR $79.00 + $3.50 S & H.

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SPECTERM-64 TERMINAL SOFTWARE IS AVAILABLE FOR EITHER THE T/S2068 (VER. TS-4.1) OR THE SPECTRUM (VER. ZX-4.1). THIS IS CURRENTLY THE ONLY TERMINAL SOFTWARE FOR THESE COMPUTERS WITH 1200 BAUD CAPABILITY. AMONG ITS OTHER FEATURES ARE 64 COLUMN DISPLAY, XMODEM FILE TRANSFERS, 31+K BUFFER AREA, FULL SCREEN COLOR CONTROL AND MUCH MORE. IT CAN BE CUSTOMIZED TO WORK WITH THE Z-SI/O CARD OR ALMOST ANY RS232 I/F (INCLUDING A MODIFIED 2050).

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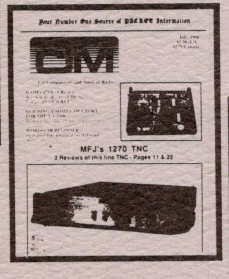

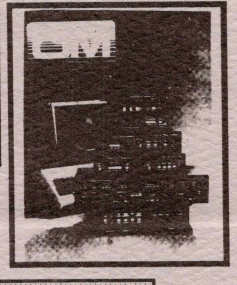

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